

**PROSPECTUS
FOR
TELECOMMUNICATION EXPANSION PROJECT**

October, 1971

**The Government of the Republic of Korea
Seoul, Korea**

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Summary of the Project

1. Project Title : Telecommunication Expansion Project

2. Project Sponsor : The Ministry of Communication

3. - Estimated Fund Requirement :

Foreign Fund : US\$ 20,000,000

Local Currency: 9,593.4 Million Won

Total : 17,093.4 Million Won

4. Project Description

In spite of the successful completion of the 1st and 2nd Five Year Plans which has marked average annual 9.4% growth rate in 1961-1970, the needs of radical improvement in external economy has been revealed to be above all important.

In fact, 16.4% average annual growth rate shown in mining and manufacturing sectors was accompanied by a heavy concentration of population into urban areas. The urbanization in turn stimulated a pressing demand on telecommunication services.

The main stress for the successful performance of the 3rd Five-Year Economic Development Plan which requires a total amount of US\$ 13.5 billion for capital investment lies on the feasibility of solid infrastructures to be built up.

The basic objectives of the project which is a part of aggregate framework of foreign capital requirement US\$ 48

million for expansion of telecommunication facilities is to support the steady and balanced growth of economy between urban, industrial sectors and rural areas providing them with a minimum requirement of toll telephone and telegraph facilities.

Overall Project Scheme

Units: Thousand Dollar
Million Won

<u>Project</u>	<u>Quantity</u>	<u>Local Cost (Won)</u>	<u>Import Cost (\$)</u>	<u>Total (Won)</u>
Coaxial cable carrier sys.	4,380 ch	2,571.6	4,225	4,156
Cable carrier sys.	4,104 ch	2,644.9	3,429	3,930.8
Open-wire carrier sys.	2,457 ch	2,221	2,157.8	3,030.2
PCM carrier sys.	4,416 ch	1,120.7	3,286	2,352.9
TG carrier sys.	1,740 ch	509.2	1,905	1,223.6
Scatter sys.	60 ch	137	1,000	512
Satellite comm. sys.	72 ch	116	1,200	566
Faximile equip't	2,000 set	273	2,600	1,248
Contingency			197.2	73.9
<u>Total</u>		<u>(Won) 9,593.4</u>	<u>(US\$) 20,000</u>	<u>(Won) 17,093.4</u>

5. Benefits of the project

- 1). The project will improve considerably various service efficiency i.e. inter-city communication traffic, modernization of rural communication media,
- 2) Especially, increased capacity due to introduction of the project may stimulate international trade.
- 3) The project is characterized by intent of enlarging or promoting domestic manufacturing of the project items.

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I. Description of Project Sponsor

1. Project Title : Telecommunication Expansion Project

2. Project Sponsor :

1) Title : The Ministry of Communications (abbreviated as MOC)

2) Functions :

i) Under Article 91 of the Constitutional Law and Article 35 of the Government Organization Law, MOC administers and conducts management and operation of the following services :

- a) Postal service
- b) Postal money order, postal savings and postal pension
- c) National life insurance
- d) Telegraph and telephone service
- e) Radio frequency control

ii) MOC is empowered to operate a monopoly of public telecommunication service by virtue of Article 3 of Telecommunication Law and Article 4 of Radio Regulation Law.

Private telecommunication is subject to authorization of MOC as is provided for in Article 60, 61 and 62 of Telecommunication Law and Article 4 of Radio Regulation Law.

3) Organization

The establishment is divided into three major echelons i.e. Headquarters, a number of Regional Administrative Offices and Offices under direct control of Headquarters and a great many of Field Offices. On top of them are the Minister who has the responsibilities of management and operation of the all business and activities of MOC, and his deputy, the Vice Minister.

Headquarters --- it is composed of the following executive functions in assisting the Minister and the Vice-Minister :

Office of Planning and Management deals affairs concerning overall basic policy, integration and coordination of budget, review and analysis of business operation, organizational and manpower control, international relations, audit and inspection, legal procedures and electronic data transmission system.

Bureau of Posts is assigned for operation of postal service, both domestic and overseas, postal money orders, postal savings and national life insurance.

Telecommunication Bureau is assigned for enactment of administrative regulations and procedures, tariff fixation, establishment of exchange areas and adjustment, conclusion of international treaty and demand forecast concerning telecommunication service.

Engineering Bureau is assigned for engineering, construction, enactment of engineering practices, maintenance and operation of telecommunication plant.

Accounting and Supply Bureaus are skipped.

Table of Organization shown in Table 1.

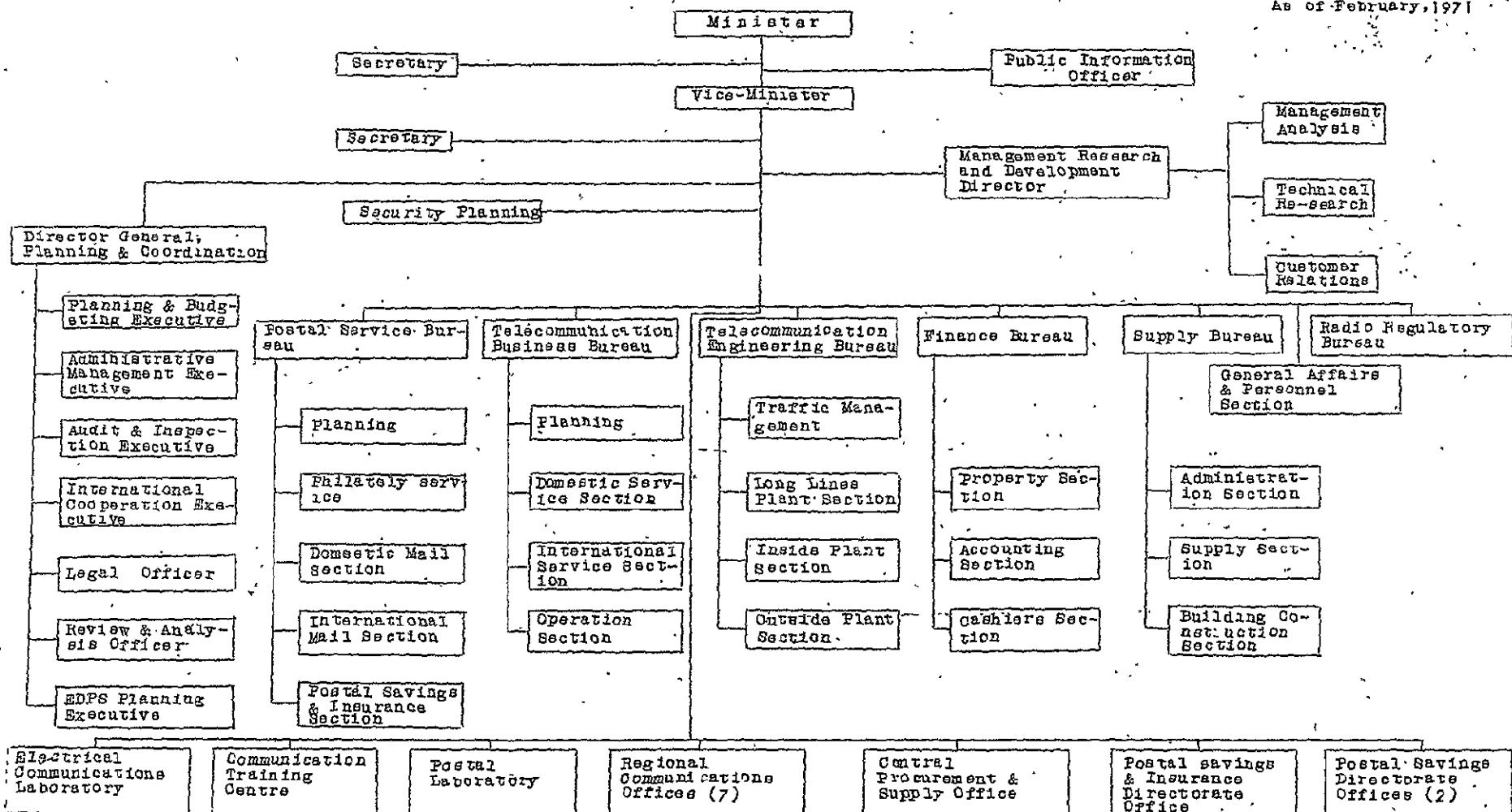
4) Manpower and number of offices

Number of employees totaled more than 40,000 and number of offices totaled 1,916 as of Jan. 1971.

Table 1

ORGANIZATION, MINISTRY OF COMMUNICATIONS

As of February, 1971



II. Contents of the Project

1. Background

The year 1970 was to be remembered as a significant milestone established in the history of telecommunications. A voluminous investment project was accomplished. Among others were the extension of 62,500 line units of local telephone, 2,041 channel of long lines and 30 channel telegraph circuits. The highlight was the Earth Station of Satellite Communications opened at Kumsan. See Table 2, Present Status of Telecommunication Facilities owned by MOC.

As shown in the following Table 3; Growth of Telecommunications in 1960-1970, Korean telecommunications have remarkably grown in the last decade of 1960's. During this period, telecommunication plant expanded to more than 5 times of the 1960 level whereas service volume increased to 10 times.

This was largely indebted to the intensive foreign loans inflowed in this period. Up to now, total amount of foreign loans reached approx. US\$60 million as shown in Table 4, Total Amount of Loans from various sources.

Nonetheless, data show that long line communications remain far from a satisfactory service in quality and quantity as well. There are still a great many bottlenecks or hot spots of long distance telephone service where the waiting time takes more than two hours.

The prime objectives of the 3rd 5-Year Plan in the field of Telecommunications has thus focused on the needs of developing the nation's rural economy.

Table 2

Present Status of Telecommunication Facilities
owned by MOC up to end of 1971

<u>Item</u>	<u>Unit</u>	<u>Quantity</u>
1. <u>Local Telephone Exchange</u>	L/U	634,430
1) Automatic		464,500
2) Common Battery		47,400
3) Magnetic		122,530
2. <u>Long-lines</u>		
1) <u>Carrier Telephone System</u>	Ch	7,262
Coaxial Cable Carrier Sys.		1,080
Cable Carrier Sys.		1,068
Open Wire Carrier Sys.		1,999
Micro-wave Carrier Sys.		2,160
PCM Carrier Sys.		960
2) <u>T. G. Carrier System</u>	Ch	917
3) <u>Scatter System</u>	Ch	120
4) <u>Satellite Comm. System</u>	Ch	69
5) <u>Facsimile Equip't</u>	Ea	8
6) <u>Sound Telegraph Equip't</u>	Ea	416

Table 3Growth of Telecommunications Service

<u>Item</u>	<u>Unit</u>	<u>60</u>	<u>66</u>	<u>70</u>	<u>10 Yrs., Increase</u>	<u>% in-creas- in '66 -'70</u>
1. Extension of Plant						
a. Local telephone	L/U	108,000	313,000	565,400	457,400	520
b. Subscriber	Man	86,600	277,700	492,300	406,300	570
c. Long line telephone	Ch	1,056	2,522	6,569	5,513	620
d. Telegraph	"	253	735	1,059	806	420
e. Overseas telegraph	"	8	14	34	26	430
f. Overseas telephone	"	10	18	82	72	820
g. T & T operating units	Ea	646	1,679	2,064	1,418	320
2. Traffic Volume (thousand)						
a. Local telephone	Call	216,000	854,000	2,175,000	1,959,000	1,010
b. Toll telephone	"	7,250	29,650	72,120	64,870	990
c. Telegraph	Ea	3,470	6,780	11,360	7,890	330
d. Overseas telephone	Call	60	100	660	600	1,100
3. Telephone subscriber per 100 population	L/U	0.43	1.17	2.2	1.77	51
4. Telecommunication Revenue	Mill. Won	1,451	11,364	28,465	28,014	1,9

Table 4

Total Amount of Loans from Various Sources Induced
to Telecommunication Service

<u>Loan Sources</u>	<u>Amount (US\$ 1,000)</u>	<u>Item</u>
DLF - 32	3,500	Local tel. exchange equip't, Carrier
KFW AL - 66	9,414	Local tel. exchange, DDD, Telex exchange equip't
AID 489	7,800	M/W
KFW AL - 237	5,140	Local tel. exchange equip't
ECOP/PAC (K - 11)	1,000	Carrier, Teleprinter, Mobile VHF
KFW F - 72	4,814	Local tel. exchange equip't
EXIM, Philco-Ford	6,280	Satellite Earth Station
ECOP/PAC (K - 17)	1,800	Carrier, Teleprinter
EXIM	2,900	M/W
ECOP/PAC (K - 25)	1,436	Carrier
German Capital Aid	5,600	Local tel. exchange equip't
KFW	5,575	DDD, Telex exchange equip't
CANADA	5,400	M/W
Total	60,659	

2. Purpose of the Project

The loan project is an essential part of the aggregate framework of the 3rd 5-Year Plan for Telecommunication Development. See Table 5, 3rd 5-Year Plan for Telecommunications.

It is understood that the potentiality of steady economic development is eventually cast in the availability of infrastructure. The construction of a super-highway was inceptive of the future trend. The Central Government likewise recognizes that the adequate communication media plays an important interfacial role in securing the steady balanced economic growth throughout the nation.

This has been identified by the following table of distribution of social overhead capital investment projection whereby communication plant displays the largest percentage increase among them.

Comparison of Social Overhead Capital Investment

Unit: million won

	72 - 76		67 - 71		% Increase
	Amount	Composition	Amount	Composition	
Total	565,272	43.6%	378,004	43.5%	149.5
Power, electric	23,128	1.8	30,478	3.5	75.9
Telecommunication	149,472	11.5	79,310	9.1	188.5
Transportation	344,646	26.6	235,231	27.1	146.5
Highway & Port Construction	48,026	3.7	32,986	3.8	145.6

Table 5

3rd 5-Year Plan for Telecommunication

Domestic: Million won
Unit: Foreign : Thousand Dollar

<u>Field</u>	<u>Total Unit</u>	<u>Domestic Capital Required</u>	<u>Foreign Capital Required</u>	<u>Total (₩)</u>
1. Local Telephone Exchange	500,000 L/U	₩ 82,458	\$11,006 (\$4,127.3)	86,585.3
2. Longline Telephone Eq.	20,121 CH	₩ 30,092	\$24,368 (\$9,138)	39,230
3. Telegraph Facilities	6,540 CH	₩ 2,497	\$ 9,666 (\$3,624.8)	6,121.8
4. International T. T	262 CH	₩ 617	\$ 2,985 (\$1,119.4)	1,736.4
5. Facilities Replacement	--	₩ 1,141	\$ 536 (\$ 202)	1,343
<u>Total Telecom.</u>		<u>₩116,805</u>	<u>\$48,561 (\$18,211.5)</u>	<u>135,016.5</u>

3. Outline of the Individual Project Scheme

The loan project is to provide various carrier equipment for use of long line telephone circuit, PCM carrier equipment, TG carrier equipment, overseas communication equipment and Facsimile, the foreign cost portion of which is estimated approx. US\$20 million. The quantity of long lines is projected to meet about 60% of accumulative demand in 1976 based on the attached Table 6, Demand and Supply in 1972-1976.

Table 6Demand & Supply Plan in 1972 - 1976

Item	Unit	Projection					Total
		1972	1973	1974	1975	1976	
<u>Long Lines (Telephone)</u>							
Marginal demand	ch	2,246	3,230	5,712	6,120	7,937	25,245
Marginal supply	ch	2,028	2,268	3,384	3,600	4,041	15,321
Coaxial Carrier		720	720	1,140	1,020	780	4,380
M/W (*)		528	636	840	1,056	1,320	4,380
Cable Carrier		480	528	888	984	1,224	4,104
Open Wire Carrier		300	384	516	540	717	2,457
<u>PCM (**)</u>							
Marginal supply	ch	720	960	1,200	696	840	4,416
<u>TG Carrier (***)</u>							
Marginal demand	ch	775	266	206	193	154	1,594
Marginal supply	ch	300	300	300	360	480	1,740
<u>Scatter System</u>							
Marginal demand	L/U	30	10	25	15	20	100
Marginal supply				60			60
<u>Satellite Comm.</u>							
Marginal demand	L/U	16	18	16	19	12	81
Marginal supply		0	72	0	0	0	72
<u>Faxsimile (*****)</u>							
Marginal supply	Set	260	300	300	500	640	2,000

Footnotes:

- * Microwave is excluded from the project.
- ** The demand is not describable; It is new origin that PCM be deviced for use of inter-office trunk lines.
- *** The projection includes EDPS requirements of the future.
- **** The demand is not describable; They will replace obsolete sound telegraph equipment (Morse type)

3.1 Coaxial Cable Carrier System

660 channels of this type are now in service and another 420 channels will be made available in 1971.

Routing Plan

Unit: Channel

<u>Route</u>	<u>Project Year</u>					<u>Total</u>
	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	
Seoul - Taejeon	180	0	60	0	60	300
Seoul - Taegu	240	60	180	120	60	660
Seoul - Pusan	0	300	180	180	120	780
Seoul - Suwon	0	0	60	120	0	180
Seoul - Chonju	0	0	120	0	60	180
Seoul - Kwangju	0	0	120	0	60	180
Seoul - Eujongbo	0	0	0	120	0	120
Taegu - Taejoon	60	0	0	0	60	120
Taejeon - Keumsan	60	0	0	60	0	120
Taejeon - Kimchon	0	0	60	0	0	60
Pusan - Taegu	0	180	180	60	0	420
Pusan - Taejeon	0	0	0	60	60	120
Pusan - Masan	0	0	0	0	120	120
Seoul - Taejeon - Keumsan	VIDEO 1	0	0	0	0	VIDEO 1
Taejeon - Siheung	120	0	0	120	0	240
Taegu - Kyoungju	0	60	0	60	0	120
Taegu - Kimchon	0	120	0	0	0	120

Taegu - Youngchon	0	0	60	0	60	120
Pusan - Woolsan	0	0	120	0	0	120
Taejeon - Nonsan	60	0	0	60	0	120
Jeonju - Chongsaup	0	0	0	60	0	60
Seoul - Nokpo	0	0	0	0	60	60
Kwangju - Mokpo	0	0	0	0	60	60
Total	720	720	1,140	1,020	780	4,380
	VIDEO 1				VIDEO 1	

3.2 Cable Carrier System

MOC is operating 444 channels of T-12A-Tr type and 432 channels of C-12 type, and another 192 channels will be put into service in 1971.

(a) Routing plan for 1972

<u>Priority</u>	<u>Route</u>	<u>Distance</u>	<u>CH</u>	<u>Type</u>
1	Chonju - Koonsan	56 Km	60	C-12T
2	Chonju - Xree	29	48	"
3	Chonju - Kimje	49	36	"
4	Chonan - Hongsung	60	96	"
5	Chonan - Yesan	40	24	"
6	Yesan - Hongsung	20.2	24	"
7	Seoul - Kwangju	24	36	PCM
8	Kangneung - Mockho	39	12	C-12

<u>Priority</u>	<u>Route</u>	<u>Distance</u>	<u>CH</u>	<u>Type</u>
9	Kangneung - Samchukt	56 Km	60	C-12
10	Chongju - Chonchiwon	18	60	PCM
11	Pusan - Milyang	54	12	C-12
12	Taegu - Milyang	60	12	"
	<u>Total</u>		<u>480</u>	

(b) Routing plan for 1973

<u>Priority</u>	<u>Route</u>	<u>Distance</u>	<u>CH</u>	<u>Type</u>
1	Seoul - Inchon	77 Km	36	C-12
2	Taegu - Pohang	114	120	"
3	Taegu - Andong	99	96	"
4	Taegu - Uiseung	92	24	"
5	Pohang - Kyoungju	34	36	"
6	Kwangju - Songjeung	13	168	PCM
7	Wonju - Hwaengseung	18	48	"
	<u>Total</u>		<u>528</u>	

(c) Routing plan for 1974

<u>Priority</u>	<u>Route</u>	<u>Distance</u>	<u>CH</u>	<u>Type</u>
1	Seoul - Pochon	54.1 Km	48	C-12
2	Seoul - Choiwon	84.5	48	"
3	Seoul - Anyang	39.9	108	"
4	Chonju - Namwon	59.0	60	"
5	Suwon- Chonan	58.8	36	"
6	Koonsan - Iree	24.0	60	"
7	Kimje - Iree	30.0	36	"
8	Chongju - Kaesan	38.0	36	"
9	Taejeon - Youngdong	45.6	48	"

<u>Priority</u>	<u>Route</u>	<u>Distance</u>	<u>CH</u>	<u>Type</u>
10	Taejeon - Okchon	14.0 Km.	48	PCM
11	Seoul - Moonsan	43.7	60	C-12
12	Taejeon - Nonsan	42.5	60	"
13	Chonju - Jeungeup	45.0	60	"
14	Taegu - Waekwan	22.8	48	PCM
15	Kangneung - Mookho	38.1	60	C-12
16	Kangneung - Bookpyoung	84.0	36	"
17	Kangneung - Samchuck	56.0	36	"
<u>Total</u>		<u>888</u>		

(d) Routing plan for 1975

<u>Priority</u>	<u>Route</u>	<u>Distance</u>	<u>CH</u>	<u>Type</u>
1	Mokpo - Youngsanpo	53.0 Km	36	C-12
2	Chonju - Iree	28.0	120	PCM
3	Kwangju - Danyang	22.4	72	"
4	Hongseung - Yesan	20.5	72	"
5	Kyoungju - Youngchon	54.0	48	C-12
6	Kimchon - Youngdong	60.2	48	"
7	Kwangju - Youngsanpo	32.3	48	"
8	Chinju - Hadong	36.0	48	"
9	Ichon - Kwangju	26.0	48	PCM
10	Chonju - Kimje	49.1	60	C-12
11	Chonju - Namwon	58.4	60	"
12	Pusan - Milyang	54.0	60	"

<u>Priority</u>	<u>Route</u>	<u>Distance</u>	<u>CH</u>	<u>Type</u>
13	Taegu - Milyang	64.0 Km	48	"
14	Suwon - Anyang	17.4	48	PCM
15	Pusan - Kimhae	25.0	48	"
16	Chungju - Chongju	83.0	120	"
	<u>Total</u>		<u>984</u>	

(e) Routing plan for 1976

<u>Priority</u>	<u>Route</u>	<u>Distance</u>	<u>CH</u>	<u>Type</u>
1	Chunchon - Hungchon	36.9 Km	36	C-12
2	Masan - Chinhae	27.0	120	PCM
3	Keunsan - Iree	24.0	120	"
4	Kimje - Kunsan	46.0	48	C-12
5	Kangneung - Mookho	38.1	48	"
6	Seoul - Yeoju	74.0	36	"
7	Wonju - Kangneung	140.0	120	"
8	Ichon - Yeoju	17.0	48	PCM
9	Chongju - Jeungpyong	16.0	48	"
10	Chungju - Kaesan	15.0	48	"
11	Seoul - Chungju	120	120	C-12
12	Chungju - Andong	109	60	"
13	Taegu - Andong	99	48	"
14	Andong - Jomchon	46	36	"
15	Chungju - Moonkyong	39	36	"
16	Seoul - Wonju	125	120	"
17	Inchon - Suwon	54	120	"
18	Pusan - Yangsan	53	12	"
	<u>Total</u>		<u>1,224</u>	
	<u>Grand Total</u>		<u>4,104</u>	

3.3 Open Wire Carrier System

A total 1,656 channels are served in various smaller cities and additional 343 ch will be made available in 1971. Particular importance is given to this project: a total 2,457 channels of 12 channel system will be fed to smaller towns, farming and fishery areas covering 205 different routes during the planned period.

(a) Routing plan for 1972

<u>Priority</u>	<u>Route</u>	<u>CH</u>	<u>Priority</u>	<u>Route</u>	<u>CH</u>
1	Seoul - Inchon	12	15	Pusan-Kyoungju	12
2	Taejeon - Muju	12	16	Taegu-Changryong	12
3	Chonju - Cheungeup	12	17	Taegu-Hapchon	12
4	Chonju - Imsil	12	18	Taegu-Songju	12
5	Chonju - Jangsu	12	19	Taegu-Uiseung	12
6	Kwangju - Iree	12	20	Taegu-Koonwui	12
7	Kwangju - Hwasoon	12	21	Taegu-Goryong	12
8	Kwangju-Naju	12	22	Taegu-Heumchon	12
9	Kwangju-Damyang	12	23	Taegu-Chongdo	12
10	Kwangju-Hampyoung	12	24	Taegu-Sunsan	12
11	Kwangju-Youngam	12	25	Sokcho-Sulak	12
12	Kwangju-Gokseung	12			
13	Kwangju-Cheungeup	12			
14	Pusan - Kyoungju	12	<u>Total</u>	<u>25 Sections</u>	<u>300</u>

(b) Routing plan for 1973

<u>Priority</u>	<u>Route</u>	<u>CH</u>	<u>Priority</u>	<u>Route</u>	<u>CH</u>
1	Seoul-Yeoju	12	17	Nonsan-Iree	12
2	Seoul-Kongju	12	18	Jaechon-Pyoungchang	12
3	Chonju-Chinan	12	19	Kyoungju-Pohang	12
4	Kwangju-Koonsan	12	20	Jeumchon-Yechon	12
5	Kwangju-Changseung	12	21	Pohang-Wooljin	12
6	Kwangju-Boseung	12	22	Seoul-Janghowan	12
7	Kwangju-Soonchang	12	23	Seoul-Bupwonri	12
8	Kwangju-Changheung	12	24	Seoul-Joonae	12
9	Taegu-Keuchang	12	25	Seoul-Daukso	12
10	Taegu-Sangju	12	26	Seoul-Dongdoochon	12
11	Taegu-Seungju	12	27	Taejeon-Yeunmoodae	12
12	Ichon-Yeoju	12	28	Taejeon-Sintanjin	12
13	Ichon-Yangpyoung	12	29	Chonju-Ohsoo	12
14	Koonsan-Chungeup	12	30	Kwangju-Youngsanpo	12
15	Cheungeup-Iree	12	31	Kwangju-Beulkyo	12
16	Namwon-Soonchang	12	32	Taegu-Hwawon	12
<u>Total</u>			<u>32 sections</u>		<u>384</u>

(c) Routing plan for 1974

<u>Priority</u>	<u>Route</u>	<u>CH</u>	<u>Priority</u>	<u>Route</u>	<u>CH</u>
1	Kangneung-Cholam	12	23	Gohung-Narodo	12
2	Hongsoung-Gwangchon	12	24	Youngnam-Youngsampo	12
3	Mokpo-Youngsampo	12	25	Jangheung-Sinwol	12
4	Masan-Changwon	12	26	Haenam-Bookpyoung	12
5	Moonsan-Bupwonri	12	27	Seukwipo-Seungsampo	12
6	Moonsan-Papyoung	12	28	Kyöungju-Boolkuksa	12
7	Ichon-Janghowon	12	29	Kyoungju-Insil	12
8	Pyoungtaek-Paengsung	12	30	Youngduck-Hoopo	12
9	Samchun-Jangseung	12	31	Youngju-Choonyang	12
10	Inje-Wondong	12	32	Jeumchon-Hamchang	12
11	Boeun-Sokrisan	12	33	Pohang-Kimpo	12
12	Danyang-Maepo	12	34	Pohang-Ankang	12
13	Youngdong-Hwangkan	12	35	Pohang-Heunghae	12
14	Jechon-Maepo	12	36	Gohyoung-Jangsungpo	12
15	Nonsan-Kangkyoung	12	37	Woolsan-Jangsaengpo	12
16	Dangjin-Hapduck	12	38	Pusan-Bangeujin	12
17	Kimje-Mankyoung	12	39	Cheongmoo-Jangsangpo	12
18	Iree-Kangkyoung	12	40	Cheongmoo-Keujae	12
19	Iree-Nangsan	12	41	Euryoung-Sinban	12
20	Jeonjeup-Julpo	12	42	Sokcho-Kenjin	12
21	Jantsco-Jangjea	12	43	Sokcho-Mookho	12
22	Kangjin-Seungchon	12	<u>Total</u>	<u>43 sections</u>	<u>516</u>

(d) Routing plan for 1975

<u>Priority</u>	<u>Route</u>	<u>CH</u>	<u>Priority</u>	<u>Route</u>	<u>CH</u>
1	Suwon-Yongin	12	24	Samchuk-Pohang	12
2	Suwon-Pyoungtaek	12	25	Jinan-Jangsoo	12
3	Suwon-Anseung	12	26	Namwon-Kooraes	12
4	Kangneong-Chongseun	12	27	Namwon-Hamyang	12
5	Sooncheun-Kooraes	12	28	Haenam-Kangjin	12
6	Mokpo-Youngam	12	29	Nonsan-Koonsan	12
7	Mokpo-Jindo	12	30	Nonsan-Pooyo	12
8	Hongseung-Tangjin	12	31	Kongju-Chongyang	12
9	Chongju-Chochiwon	12	32	Waekwan-Seungju	12
10	Chongju-Jincheun	12	33	Chungmoo-Kohyon	12
11	Chongju-Eumseung	12	34	Kyoungju-Pohang	12
12	Chongju-Boeun	12	35	Kimchon-Waekwan	12
13	Chongju-Kaesan	12	36	Youngju-Yechon	12
14	Chungju-Damyang	12	37	Jeumchon-Yechon	12
15	Chonju-Hadong	12	38	Pohang-Samchuk	12
16	Chonju-Keuchang	12	39	Pohang-Wooljin	12
17	Jinju-Hamyang	12	40	Seoul-Dongdoochon	12
18	Andong-Eusung	12	41	Taejeon-Sintanjin	12
19	Andong-Chongsong	12	42	Chonju-Wonju	12
20	Andong-Youngyang	12	43	Chonju-Kohsan	12
21	Andong-Youngduck	12	44	Kwangju-Nampyoung	12
22	Ichon-Kwangju	12	45	Taegu-Ansim	12
23	Youngwol-Pyoungchang	12	Total	45 sections	540

(e) Routing plan for 1976

<u>Priority</u>	<u>Route</u>	<u>CH</u>	<u>Priority</u>	<u>Route</u>	<u>CH</u>
1	Kwangju-Naksaeng	12	22	Kimje-Wonpyoung	12
2	Anseung-IIjuk	12	23	Namwon-Daegang	12
3	Pyoungtaek-Anjung	12	24	Namwon-Ohsoo	12
4	Pochon-Jangam	12	25	Mooju-Seulchon	12
5	Samchuk-Keunduck	12	26	Pooan-Gomso	12
6	Youngwol-Macha	12	27	Pooau-Gulpo	12
7	Youngwol-Hambaek	12	28	Iree-Hanyoul	12
8	Hoesong-Daohwa	12	29	Jeungeup-Sintaein	12
9	Goesan-Jeongpyoung	12	30	Iree-Yongan	12
10	Boeun-Macha	12	31	Jeungeup-Naejang	12
11	Jinchon-Ducksan	12	32	Jeungeup-Youngwol	12
12	Jaechon-Naepo	12	33	Jeungeup-Hongduck	12
13	Dangjin-Gijisi	12	34	Kangjin-Maryang	12
14	Daecheon-Kwangchon	12	35	Bosung-Beulkkyo	12
15	Pooyo-Hongsung	12	36	Youngam-Seuho	12
16	Seuchon-Janghang	12	37	Wando-Goonwae	12
17	Seuchon-Hansan	12	38	Hawnam-Wusooyoung	12
18	Gochang-Mooan	12	39	Haesoon-Neungju	12
19	Gochang-Heungduck	12	40	Kwangyang-Seumkeu	12
20	Koonsan-Impee	12	41	Kyoungju-Chunchon	12
21	Kimje-Sintaein	12	42	Kyoungju-Gampo	12

<u>Priority</u>	<u>Route</u>	<u>CH</u>	<u>Priority</u>	<u>Route</u>	<u>CH</u>
43	Kyoungju-Aniwa	12	53	Pohang-Ankang	12
44	Kimchon-Cheopungs-ryoung	12	54	Keuchang-Gajo	12
45	Kimchon-Jirae	12	55	Gayang-Koorae	12
46	Youngchon-Hayang	12	56	Gosung-Dangdong	12
47	Wooljin-Hoopo	12	57	Kimhae-Jinyoung	12
48	Waekwan-Yakmook	12	58	Kimhae-Jukrim	12
49	Jeumchon-Gaeun	12	59	Pusan-Eunyang	12
50	Chongsong-Boonam	12	60	Choongmoo-Jangseungpo	12
51	Pohang-Kuryongpo	12	<u>Total</u>	<u>60 sections</u>	<u>717</u>
52	Pohang-Hupo	12	<u>Grand Total</u>		<u>2,457</u>

3.4 Carrier Telegraph System

This type of system is applied to use for multiplication of trunk lines linked between telex exchange terminals and toll telephone terminals.

Routing Plan

(Unit: Channel)

<u>Route</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>Total</u>
Taejeon - Seoul	120	96	96	160	124	596
Taejeon - Pusan	48	48	48	48	72	264
Taejeon - Taegu	48	48	48	48	72	264
Taejeon - Kwangju	48	48	48	48	72	264
Taejeon - Chonju	36	24	24	24	60	168
Other inter-sections		36	36	32	80	184
<u>Total</u>	<u>300</u>	<u>300</u>	<u>300</u>	<u>360</u>	<u>480</u>	<u>1,740</u>

3.5 Facsimile Equipment

The project is dedicated to a modernization plan of telegraph service. A total of 2,000 complete sets will be supplied to smaller post offices of remote areas to replace Morse type.

3.6 Scatter System between Korea and Japan

A capacity of 120 channels are now been operating. The plan is to put 60 channels add-on in 1975.

3.7 Satellite Communication System

When 30 channels add-on be completed in 1971, a total capacity of 69 channels will be in service. The plan is to provide 20 channels add-on in 1974 and 52 channels in 1976, respectively, to cope with growing overseas communications.

<u>Routing Plan (International)</u>	<u>Channel</u>
Seoul - U. S. A.	32
Seoul - Hong Kong	12
Seoul - Philippines	1
Seoul - Thailand	1
Seoul - Taiwan	2
Seoul - India	1
Reserve Channel	23
<u>Total</u>	<u>72</u>

3.8 PCM Carrier System

384 channels are now in service and additional 576 channels will be put into service in 1971.

Based on technical advantages and economic reason, PCM will be used for multiplexing inter-office trunk lines in larger cities where cable construction is costly and complicate.

(a) Routing plan for 1972

(1)	Soung Bulk Bureau - No Ryang Jin	240 CH
(2)	Kwang Ju - Song Jeung	240 CH
(3)	No Ryang Jin - Toll Exchange Bureau	120 CH
(4)	Toll Exchange Bureau - Young Deungpo	120 CH
	Total	720 CH

(b) Routing plan for 1973

(1)	Soung Duk Bureau - Young Deungpo	240 CH
(2)	Dongdae Mun - Sin Chon	240 CH
(3)	Pusan Bureau - Tong Nae	240 CH
(4)	Pusan Bureau - Haeun Dae	240 CH
	Total	960 CH

(c) Routing plan for 1974

(1) Dongdae Mun - Chong Ryangree	240 CH.
(2) Dongdae Mun - Young Deungpo	240 CH.
(3) Toll Exchange Bureau - No Ryangjin	240 CH.
(4) Cho Ryang Bureau - Haeun Dae	240 CH.
(5) Tae Jeon Bureau - Eu Seung	240 CH.
Total	1,200 CH

(d) Routing Plan for 1975

(1) Mok Po - Ilno	96 CH.
(2) Kwang Ju - Song Jeong	240 CH.
(3) Tae Ku - Dong Tae Ku	120 CH.
(4) Toll Exchange Bureau - Sin Chon	120 CH.
(5) Toll Exchange Bureau - Chong Ryangri	120 CH.
Total	696 CH.

(e) Routing plan for 1976

(1)	Kwanghwa Mun - Kwang Jang	120 CH.
(2)	Kwanghwa Mun - Chong Ryangri	120 CH.
(3)	Mi Ari - No Ryangjin	240 CH.
(4)	Mi Ari - Kwang Jang	120 CH.
(5)	Dong dae Mun - No Ryang Jin	240 CH.
	Total	840 CH.
	Grand Total	4,416 CH.

4. Estimated Funds of the Loan Project

Foreign cost of the project is estimated based on the previous quotations of ECOP project. Local cost, which totaled W 9,593 million is estimated in accordance with the Domestic Production Plan projected as is indicated in below:

Domestic Production Plan

Item	Domestic Production Ratio (%)				
	72	73	74	75	76
Coaxial Cable Carrier Equip.	30	35	40	50	60
Cable Carrier Equip.	35	40	50	60	65
Open Wire Carrier Equip.	55	60	65	70	75
PCM	10	15	20	25	30

The details of fund requirement of the project are shown in Table 7, Estimated Funds of the project, Foreign Cost and Local Cost.

Table 7

Estimated Funds of the Project, Foreign Cost and
Local Cost

Exchange rate: One US\$ = 375 Won Unit: Thousand Dollar
Million Won

Project		72	73	74	75	76	Total
	Quantity (ch)	720	720	1,140	1,020	780	4,380
Coaxial Cable Carrier Sys.	Dollar	937	893	1,020	815	560	4,225
	(Won)	(351.4)	(334.9)	(382.5)	(305.6)	(210)	(1,584.4)
		382.4	386.8	550.4	633.3	618.7	2,571.6
	Sub-total (W)	733.8	721.7	932.9	938.9	828.7	4,156
	Quantity (ch)	480	528	888	984	1,224	4,104
Cable Carrier Sys.	Dollar	497	437	785	727.5	982.5	3,429
	(Won)	(186.4)	(163.9)	(294.4)	(272.8)	(368.4)	(1,285.9)
		174.6	310.3	521.9	520.9	1,117.2	2,644.9
	Sub-total (W)	361	474.2	816.3	793.7	1,485.6	3,930.8
	Quantity (ch)	300	384	516	540	717	2,457
Open-wire Carrier Sys.	Dollar	319.8	380	476	454	528	2,157.8
	(Won)	(120)	(142.5)	(178.5)	(170.2)	(198)	(809.2)
		241.9	312.6	445.4	503.7	717.4	2,221
	Sub-total (W)	361.9	455.1	623.9	673.9	915.4	3,030.2
	Quantity (ch)	720	960	1,200	696	840	4,416
PCM Carrier Sys.	Dollar	540	680	960	525	581	3,286
	(Won)	(202.5)	(255)	(360)	(196.8)	(217.9)	(1,232.2)
		132.7	198.9	308.2	205.7	275.2	1,120.7
	Sub-total (W)	335.2	453.9	668.2	402.5	493.1	2,352.9
	Quantity (ch)	300	300	300	360	480	1,740
TG Carrier Sys.	Dollar	330	330	340	380	525	1,905
	(Won)	(123.8)	(123.8)	(127.5)	(142.5)	(196.8)	(714.4)
		89	89	97.8	105.6	127.8	509.2
	Sub-total (W)	212.8	212.8	225.3	248.1	324.6	1,223.6

Project	72	73	74	75	76	Total
Scatter Sys.	Quantity (ch)		60			60
	Dollar		1,000			1,000
			(375)			(375)
	Won		137			137
Satellite Comm. Sys.	Sub-total (₩)		512			512
	Quantity (ch)	72				72
	Dollar	1,200				1,200
		(450)				(450)
Facsimile	Won	116				116
	Sub-total (₩)	566				566
	Quantity	260	300	300	500	640
	Dollar	338	390	390	650	832
		(126.8)	(146.2)	(146.2)	(243.8)	(312)
	Won	35	42	41	68	87
	Sub-total (₩)	161.8	188.2	187.2	311.8	399
Contingency						\$ 197.2
						(73.9)
Total	Foreign cost	2,961.8	4,310	4,971	3,551.5	4,000
	Local cost	1,055.6	1,455.6	2,101.7	2,037.2	2,943.3
						9,593.4

5. Construction Schedule

Under consideration of the contracting procedures, shipping and installation work, the following construction schedules are prepared for the completion of project in the scheduled year.

Construction Schedule

<u>Project</u>	<u>Contract</u>	<u>Manufacturing</u>	<u>Shipping</u>	<u>Installation</u>	<u>Cut-over</u>
Carrier telephone sys. (FY 72)	72.2	72.5	73.3	73.4	73.6
Carrier telegraph sys. (FY 72)	72.2	72.5	73.1	73.2	73.4
Scatter sys.	74.4	75.2	75.3	75.6	75.7
Satellite Communication sys.	73.4	74.2	74.3	74.4	74.7
Facsimile equipment (FY 72)	72.2	72.3	73.1	73.2	73.4

6. Administrative arrangement and Procurement procedures

When the financial sources of foreign capital is made available, MOC will take an immediate action required to effectuate a loan agreement pursuant to the domestic laws. The office of supply will proceed the necessary procurement procedures of the loan project in accordance with the pertinent regulations. The procurement contract shall be a triple parties contract between OSROK, foreign manufacturer and domestic manufacturer.

Foreign manufacturer shall supply raw material, parts and components which can not be produced in domestic market whereas domestic manufacturer shall manufacture a list of product items locally available and supply the complete assembly of the project items.

7. Benefits of the Project

- 1) It is expected that the increased capacity derived from the project satisfies inter-city communication traffic considerably which otherwise would have gotten worse, and results in an improved transmission quality and service efficiency. The improved service efficiency in turn has a positive effect on revenue.
- 2) It helps modernize rural communication Media - from Morse to Facsimile.
- 3) It is expected to serve for integration of long line circuits.
- 4) Multiplexed inter-office trunk lines by PCM carrier system save the transmission loss and increase trunk line capacity with less cost.
- 5) It provides enough quantity of long line circuits, which permits toll dialing system (DDD) practicable.
- 6) Increased capacity of overseas communications may effect a stimulus on international trade promotion.
- 7) The project is characterized by the intent of promoting domestic manufacturing capabilities of the project items.

III. Technical Feasibility

1. Local manufacturing techniques

Local manufacturing of the project equipment as indicated in the attached domestic manufacturing schedule will be undertaken by a qualified industry which has become experienced over the past few years in supplying MOC assembled products of the major project items. The project is characteristically designed for a radical increase and improvement of domestic manufacturing capabilities of the project items under technical cooperation arrangement.

2. Installation techniques

MOC has 7,525 employees of technical manpower in telecommunication field including 814 carrier technicians. Carrier equipment has been installed and operated since 1960, and MOC's construction teams have become experienced in installation techniques. New techniques which the project may require are expected to be solved by technical assistance.

3. Maintenance and Operation

Carrier terminals have been maintained and operated by 12 construction offices for the past 10 years. Technicians are trained by MOC's training institute. As plant size increased rapidly in the recent years, particular importance was laid on the effective training of technical forces for both maintenance and installation. On coping with the problem, the Training Institute began to reform its organiza-

tion - a number of local training institutes were newly opened and started functioning.

Its functions were called upon diversification. As a result, Central Training Institute is primarily assigned to undertake training professional engineers and instructors as well whereas local training institutes are expected to train technicians, operators and other technical manpower.

This program is however constrained to an inactivity because of the limited budget and training equipment and the lack of enough instructors. It is therefore expected to provide a sufficient number of fellowship to MOC personnel and invite foreign experts to train them through a technical assistance arrangement. It is particularly emphasized in so far as new type of equipment is concerned. In regard to spare parts, which may be required for maintenance, these will be secured by MOC's fiscal budget.

IV. Economic Feasibility

1. Economic aspect

As shown in Table 8, Cash Flow Plan, annual investment funds for fixed assets are projected to be generated from the self-gained reserves, i.e. net income, depreciation and capital surplus. Weight of long-term liabilities over total investment size remains slightly over 10%. As such being the financial structure, the local funds required for the project are expected to be raised smoothly.

2. Ability of repayment

As shown in Table 9, Analysis of Financial Statements, Table 10, Comparative P/L Statement and Table 11, Comparative Balance Sheet, current ratio in the last four years was 153% at lowest : it is projected to increase up to more than 200% in the coming four years. Solvency of short-term debt is, therefore, plainly sufficient.

Solvency of long-term debt is also evidently sufficient on account of debt ratio. Profitability in terms of net income to revenue on overall communication service including postal service gained 27% - 45% in 1966 - 1970 : it is projected to gain 28% - 33% in 1971 - 1976. This represents the best business return among public utility enterprises.

Table 8

Cash Flow Plan

Unit: one million

Special account of communication services

Item	Year	Analysis on the past records					Future Projections				
		1967	1968	1969	1970	1971	1972	1973	1974	1975	1976
Cash inflows											
1. Net income		6,230	8 0	6,795	9,080	14,198	14,824	17,348	23,398	28,278	32,585
2. Non-cash expenditures		845	1,139	4,827	4,423	3,923	4,232	4,461	5,794	6,738	9,801
a) Depreciation		797	997	4,827	4,423	3,646	4,232	4,461	5,794	6,738	9,801
b) Loan valuation		48	142	0	0	277	0	0	0	0	0
3. Capital revenue		4,509	14,371	12,485	13,745	5,330	11,612	15,377	16,940	15,616	10,558
a) Long-term loans		1,386	1,602	2,134	201	695	2,393	1,456	2,349	1,230	1,994
b) Capital surplus		3,123	12,769	10,351	13,544	4,635	9,221	13,921	14,591	14,386	8,564
Assets revaluation		0	9,768	6,513	10,448	0	4,927	6,832	10,751	8,689	2,230
Donation		37	178	86	55	0	119	70	140	160	140
Subscriber charges		3,083	2,806	3,709	2,961	4,573	4,081	4,890	3,605	5,337	5,990
Others		3	37	43	80	62	94	129	95	200	204
Total cash inflows		11,564	23,670	24,107	27,248	23,451	30,670	37,186	46,132	50,632	52,944
Cash outflows											
1. Capital expenditures		11,810	22,499	19,429	28,037	23,451	24,520	28,720	32,942	36,505	41,104
a) Additions to fixed assets		9,855	20,999	18,953	27,668	23,451	24,520	28,720	32,942	36,505	41,104
b) Deposits on treasury		1,700	1,500	0	0	0	0	0	0	0	0
c) Deferred assets		0	0	476	369	0	0	0	0	0	0
2. Payment on long-term debt		85	88	77	51	695	1,148	1,365	1,379	1,757	1,709
3. Capital surplus		169	0	0	0	0	0	0	0	0	0
4. Net increase to working capital		500	1,083	4,601	840	695	5,002	7,101	11,811	12,370	10,131
Total cash outflows		11,564	23,670	24,107	27,248	23,451	30,670	37,186	46,132	50,632	52,944

Table 9

Analysis of Financial Statements

Item		Year	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976
Current ratio	<u>Current assets</u> Current liabilities		241 %	184 %	153 %	176.5 %	153.8 %	153 %	184 %	205 %	221 %	223 %	201 %
Debt ratio	<u>Liabilities</u> Total capital		48.6 %	47.5 %	49.6 %	38.7 %	34.5 %	29 %	26 %	25 %	24 %	24 %	29 %
Long-term adjustable ratio	<u>Fixed assets</u> Ownership + fixed liabilities		67 %	72 %	78 %	77 %	83 %	85 %	83 %	82 %	79 %	77 %	76 %
Net income to Revenue ratio	<u>Net income</u> Revenue		44.7 %	40.3 %	36.1 %	24.8 %	27.0 %	32 %	28 %	29 %	32 %	33 %	33 %
Telecomm. net income ratio	<u>Telecomm. net</u> <u>income</u> Telecomm. revenue		53 %	48 %	48 %	44 %	42 %						

Table 10

Comparative Profit & Loss Statement

Unit: one million won

Item	Year	Analysis on the past records					Future projections				
		66	67	68	69	70	71	72	73	74	75
1. Operating revenue		12,392	15,445	21,584	27,359	33,524	43,544	51,601	59,026	71,436	83,899
a) Postal service		3,350	4,397	5,863	7,076	8,846	10,897	13,419	14,811	16,237	17,704
b) Telecomm.		9,042	11,048	15,821	20,283	24,678	32,647	38,182	44,215	55,199	66,195
2. Operating expenses		6,394	8,934	12,811	19,451	23,015	25,801	32,801	37,133	43,244	50,555
a) Postal service		2,562	3,411	5,113	8,776	9,535	8,727	13,414	14,941	16,651	18,570
b) Telecomm.		3,942	5,573	7,698	10,675	13,480	17,071	19,387	22,192	26,593	31,985
3. Operating income, gross		5,888	6,511	8,873	7,908	10,509	17,743	18,800	21,893	28,192	33,344
4. General administrative expense		337	516	694	1,051	1,181	1,541	1,546	1,756	1,999	2,276
5. Operating income		5,551	5,995	8,179	6,857	9,328	16,202	17,254	20,137	26,193	31,068
6. Non-operating income		600	858	895	931	1,371	340	429	467	505	542
7. Current gross income		6,151	6,853	9,074	7,788	10,699	16,542	17,683	20,604	26,698	31,610
8. Non-operating expense		606	623	914	993	1,619	2,344	2,859	3,256	3,300	3,332
9. Current net income		5,545	6,230	8,160	6,795	9,080	14,198	14,824	17,348	23,398	28,278
											32,585

Table 11

Comparative Balance Sheet

Unit: one million won

Item	Year	Analysis on the past records					Future Projections					
		66	67	68	69	70	71	72	73	74	75	76
Assets:												
1) Fixed Assets		21,992	31,848	52,847	71,801	99,470	122,922	147,442	176,162	209,104	245,609	286,713
Depreciation reserve		1,517	2,315	3,312	8,139	12,563	16,209	20,441	24,902	30,696	37,434	47,235
2) Current assets		7,459	7,901	13,399	16,118	17,131	17,131	21,349	30,123	40,525	60,275	83,110
3) Investment		3,283	5,399	7,253	11,240	14,065	14,065	16,254	21,166	28,999	34,478	45,089
4) Deposit on treasury account		2,200	3,900	5,400	5,400	5,400	5,400	5,400	5,400	5,400	5,400	5,400
5) Deferred assets		1,436	1,389	1,247	1,724	2,093	1,816	1,816	1,816	1,816	1,816	1,816
Total assets		34,853	48,122	76,834	98,144	125,596	145,125	171,820	209,765	255,148	310,144	374,893
Liabilities:												
1) Long-term debt		6,974	8,275	9,788	11,845	11,995	12,690	15,083	16,539	18,888	20,118	22,112
2) Short-term debt		346	885	3,081	1,254	1,766	1,766	2,445	2,717	4,099	6,544	9,812
3) Postal savings and money order		4,097	6,342	10,434	14,347	18,510	18,510	18,088	23,036	26,699	35,355	53,694
Total liabilities		11,417	15,502	23,283	27,446	32,271	32,966	35,616	42,292	49,686	62,018	85,618
Ownership:												
1) Capital		6,427	6,424	6,424	6,424	6,424	6,424	6,424	6,424	6,424	6,424	6,424
2) Capital surplus		7,017	9,974	22,744	33,096	46,643	51,278	60,499	74,420	89,011	103,397	111,961
a) Revaluation reserve		3,219	3,053	12,821	19,335	29,784	29,784	34,711	43,543	54,294	62,983	65,213
b) Donation		204	241	420	506	561	561	680	750	890	1,050	1,190
c) Subscriber charges		3,537	6,620	9,426	13,135	16,097	20,670	24,751	29,641	33,246	38,583	44,573
d) Others		57	60	77	120	201	263	357	486	581	781	985
3) Earned surplus		9,992	16,222	24,383	31,178	40,258	54,457	69,281	86,629	110,027	138,305	170,890
a) Current net income		5,545	6,230	8,160	6,795	9,080	14,198	14,824	17,348	23,398	28,278	32,585
b) Others		4,447	9,992	16,223	24,383	31,178	40,259	54,457	60,281	86,629	110,027	138,305
Total ownership		23,436	32,620	53,551	70,698	93,325	112,159	136,204	167,473	205,462	248,126	289,275
Total Liabilities and Ownership		34,853	48,122	76,834	98,144	125,596	145,125	171,820	209,765	255,148	310,144	374,893

V. Proposed Loan

1. It is proposed that a loan fund of US\$20,000,000 be made to carry out the Project in conjunction with local financial resources.

2. The loan currency shall be used to import the parts and components which are not available in domestic market.

3. Proposed loan conditions:

- 1) Amount : US\$20,000,000,-
- 2) Purpose : To finance the necessary fund to expand long-line telephone facilities including Scatter system, Satellite communication equipment; PCM Carrier equipment and Facsimile.
- 3) Interest : 3% per annum including grace period
- 4) Grace Period : 10 years
- 5) Repayment : 20 years (semi-annual repayment)

The Expansion Layout of Coaxial Cable Carrier Equipment in 3rd 5year Plan(1972-1976)

1. Coaxial carrier facilities in Hand

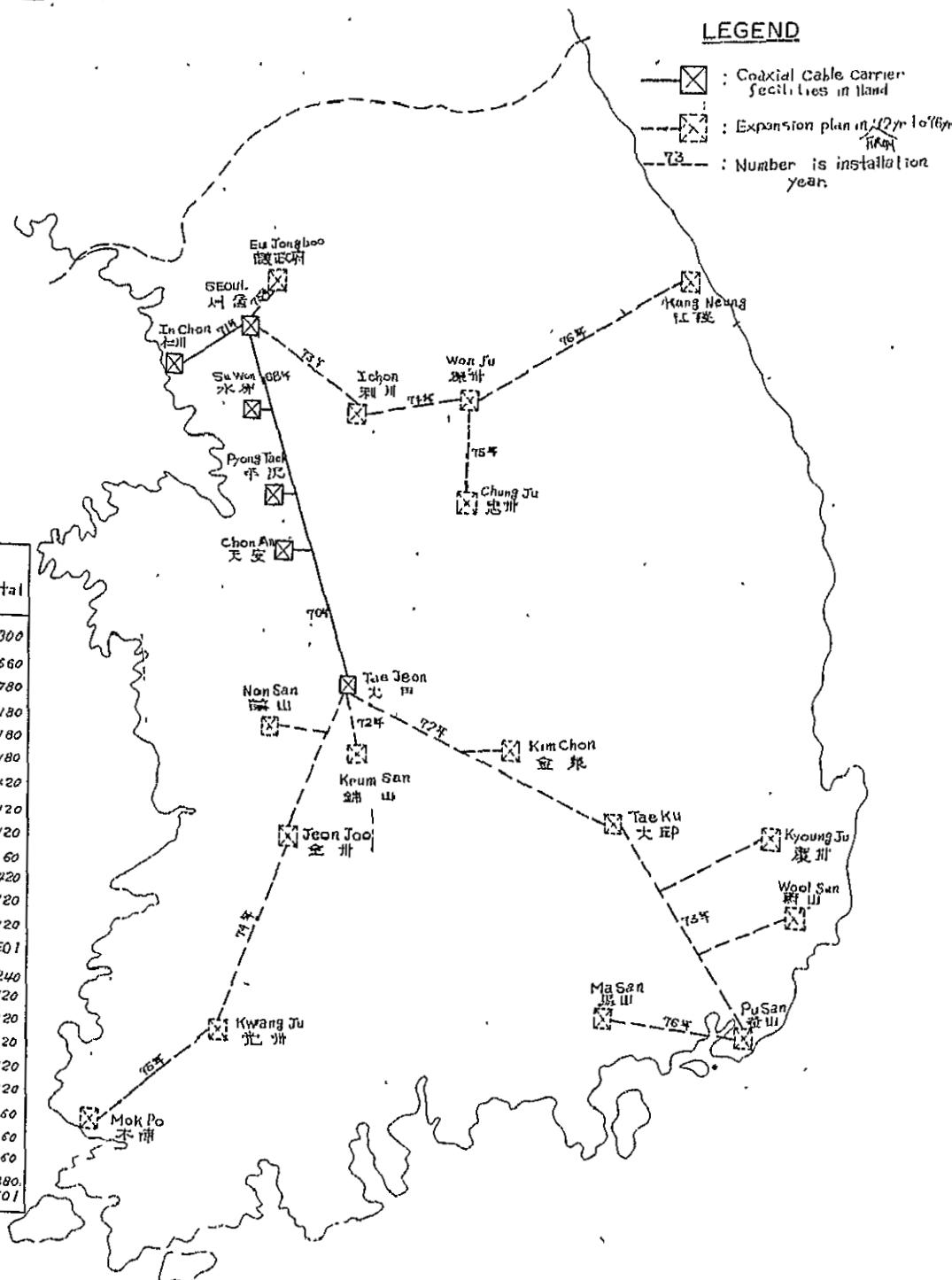
Inter section	Cannels	Remarks
Seoul - SuWon	180	1968 年度
“ - Tae Jeon	240	1970
“ - Chon An	120	·
“ - Pyong Taek	60	·
Tae Jeon - Chon An	60	·
Seoul - In Chon	420	1971 年度
Total	1,080	

2. Expansion of the facilities.

Planning per year Inter-section	1972	1973	1974	1975	1976	Total
Seoul - Tae Jeon	180	0	60	0	60	300
“ - Tae Ku	240	60	180	120	60	660
“ - Pusan	0	300	180	180	120	780
“ - Suwon	0	0	60	120	0	180
“ - Chon Ju	0	0	120	0	60	180
“ - Kwang Ju	0	0	120	0	60	180
“ - Eu Jong boo	0	0	0	120	0	120
Tae Ku - Tae Jeon	60	0	0	0	60	120
Tae Jeon - Keum San	60	0	0	60	0	120
“ - Kim Chon	0	0	60	0	0	60
Pusan - Tae Ku	0	180	180	60	0	420
“ - Tae Jeon	0	0	0	60	60	120
“ - Ma San	0	0	0	0	120	120
Seoul - Tae Jeon	VIDEO 1	0	0	0	0	VIDEO 1
“ - Keum San						
Tae Jeon - Si Hwang	120	0	0	120	0	240
Tae Ku - Kyoung Ju	0	60	0	60	0	120
“ - Kim chon	0	120	0	0	0	120
“ - Young Chan	0	0	60	0	60	120
Pusan - Wool Sun	0	0	120	0	0	120
Tae Jeon - Non San	60	0	0	60	0	120
Jeon Jon - Chong Eup	0	0	0	60	0	60
Seoul - Mok Po	0	0	0	0	60	60
Kwang Ju - Mok Po	0	0	0	0	60	60
Total	720	720	1,140	1,020	790	4,380
	VIDEO 1	VIDEO 1				

LEGEND

- : Coaxial Cable carrier facilities in Hand
- - - : Expansion plan in 1/2 yr 10yr
- : Number is installation year



The Expansion Layout of Toll Cable Carrier Equipment in 3rd 5year Plan (1972-1976)

1 12CH CABLE CARRIER SYSTEMS IN HAND			
INTER SECTIONS	CHANNEL	INTER SECTIONS	CHANNEL
JEONU-PUSAN	84	ENCHANTED-PUSAN	24
-TAGU	24	JOHN-JUSTIN	12
-DAEGU	24	KIYON-TAGO	24
-ENJUKSAN	10	-PUSAN	12
-PP LHN	12	TAGU-PUSAN	36
-HHL-SAN	28	PUSAN-MARYANG	24
-INCHON	132	TOTAL	792

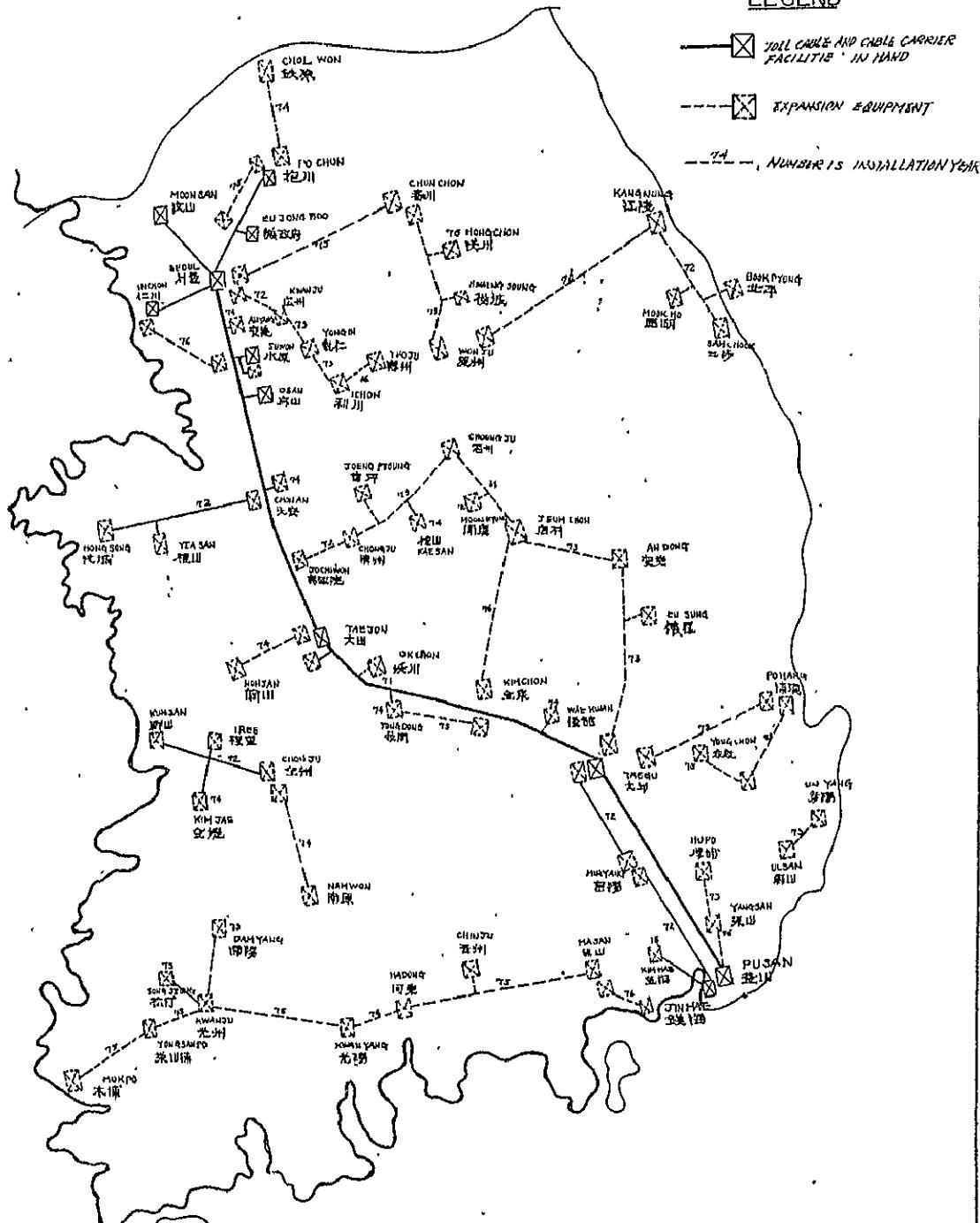
2 1972-1978 Y'S INSTALLATION SECTIONS

LEGEND

 **SOIL CABLE AND CABLE CARRIER
FACILITIES IN HAND**

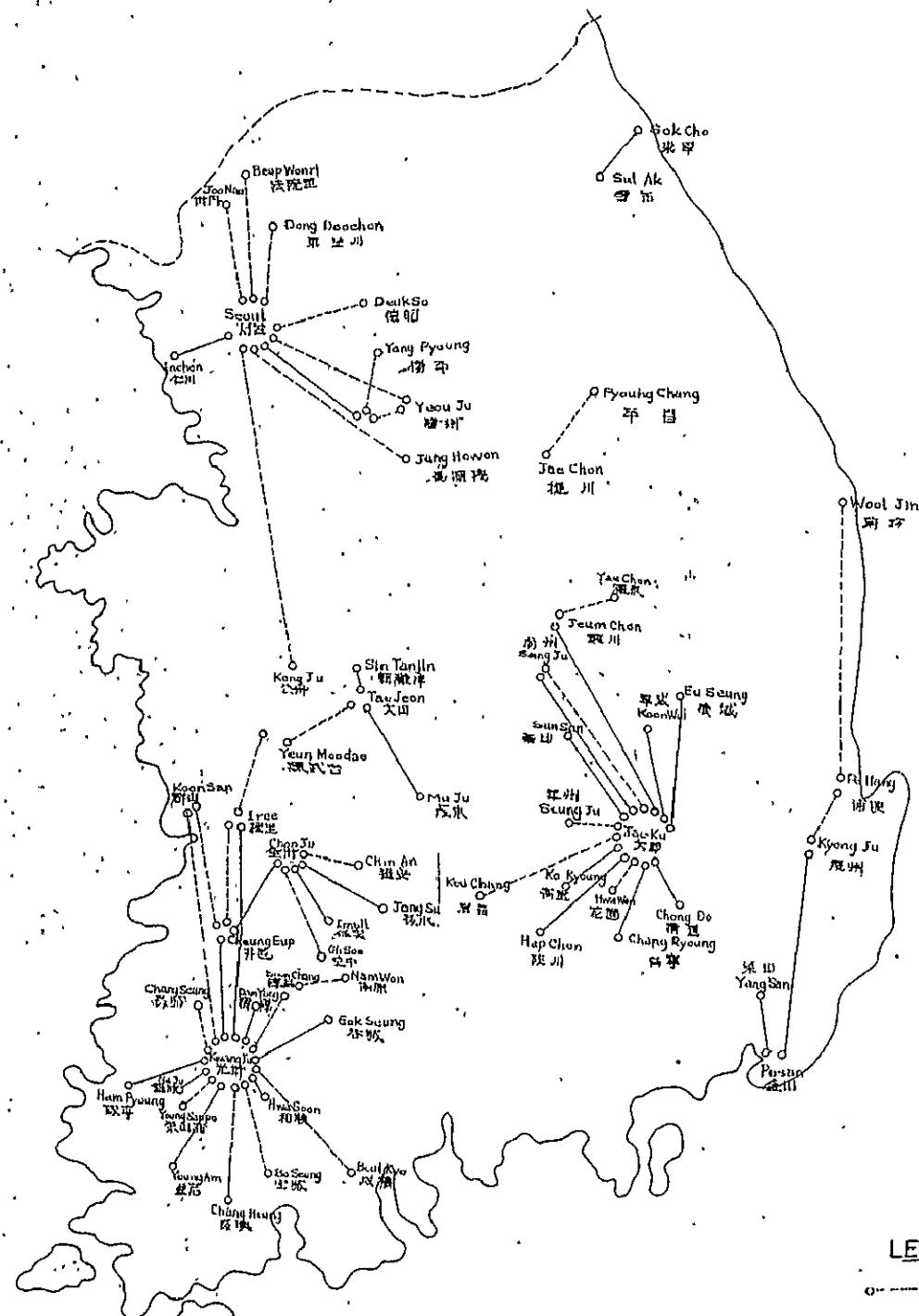
-----  EXPANSION EQUIPMENT

NUMBER IS INSTALLATION YEAR



The Expansion Layout of OpenWire Carrier Equipment in 3rd 5year Plan(1972-1973)

1972's Installation Sections		73's Installation Sections	
Pri- or- ty	Intra-Sections	Pri- or- ty	Intra-Sections
1	Seoul-Ichon	12	1 Seoul-Yeo Ju
2	Tae Jeon - Mu Ju	12	2 Seoul-Kong Ju
3	Chon Ju-Cheung Eup	12	3 Chon Ju-Chin An
4	Chon Ju-Jinil	12	4 Kwang Ju-Koch San
5	Chon Ju-Jang Su	12	5 Kwang Ju-Chang Seung
6	Kwang Ju-Irc	12	6 Kwang Ju-Ba Seung
7	Kwang Ju-Hwa Sooh	12	7 Kwang Ju-Soo Chang
8	Kwang Ju-Na Ju	12	8 Kwang Ju-Chang Heung
9	Kwang Ju-Dam Yang	12	9 Tae Ku-Kui Chang
10	Kwang Ju-Han Pyoung	12	10 Tae Ku-Sang Ju
11	Kwang Ju-Young Am	12	11 Tae Ku-Seung Ju
12	Kwang Ju-Gok Seung	12	12 Ichon-Yeo Ju
13	Kwang Ju - Cheung Eup	12	13 Ichon-Yang Pyoung
14	Pusan-Kyong Ju	12	14 Koon San-Cheung Yeaup
15	Pusan-Yang San	12	15 Cheung Yeaup-Irc
16	Tam Ki-Chang Kyong	12	16 Nam Won-Soo Chang
17	Tae Ku-Hap Chan	12	17 Non San - Irc
18	Tae Ku-Song Ju	12	18 Tae Chen-Young Chung
19	Tae Ku-Ul Seung	12	19 Kyoun Jü-Pa Hang
20	Tae Ku-Koon Wu	12	20 Jeum Chan-Yeo Chan
21	Tae Ku-Go Kyong	12	21 Pa Hung-Wool Jin
22	Tae Ku-Jeum Chan	12	22 Seoul-Jang Howan
23	Tae Ku-Chong Da	12	23 Seoul-Beup Woori
24	Tae Ku-Sun Sun	12	24 Seoul-Joo Nau
25	Sok Cho-Sul Ak	12	25 Seoul-Deuk So
Total	25 Sections	300	27 Tae Jeon-Yeon Meddu
			28 Tae Jeon-Sin Tanjin
			29 Chon Ju-Oh Soo
			30 Kwang Ju-Young Sanpo
			31 Kwang Ju-Beul Kyu
			32 Tae Ku-Hwa Wan
	Total	72 sections	384



LEGEND

- - - - '72, '73
INSTALLATION SECTION
OPENWIRE EQUIP.
- - - - '73
INSTALLATION SECTION
OPENWIRE EQUIP.

The Expansion Layout of Open Wire Carrier Equipment in 3rd 5year Plan(1974-1976)

1974 y's Installation Sections

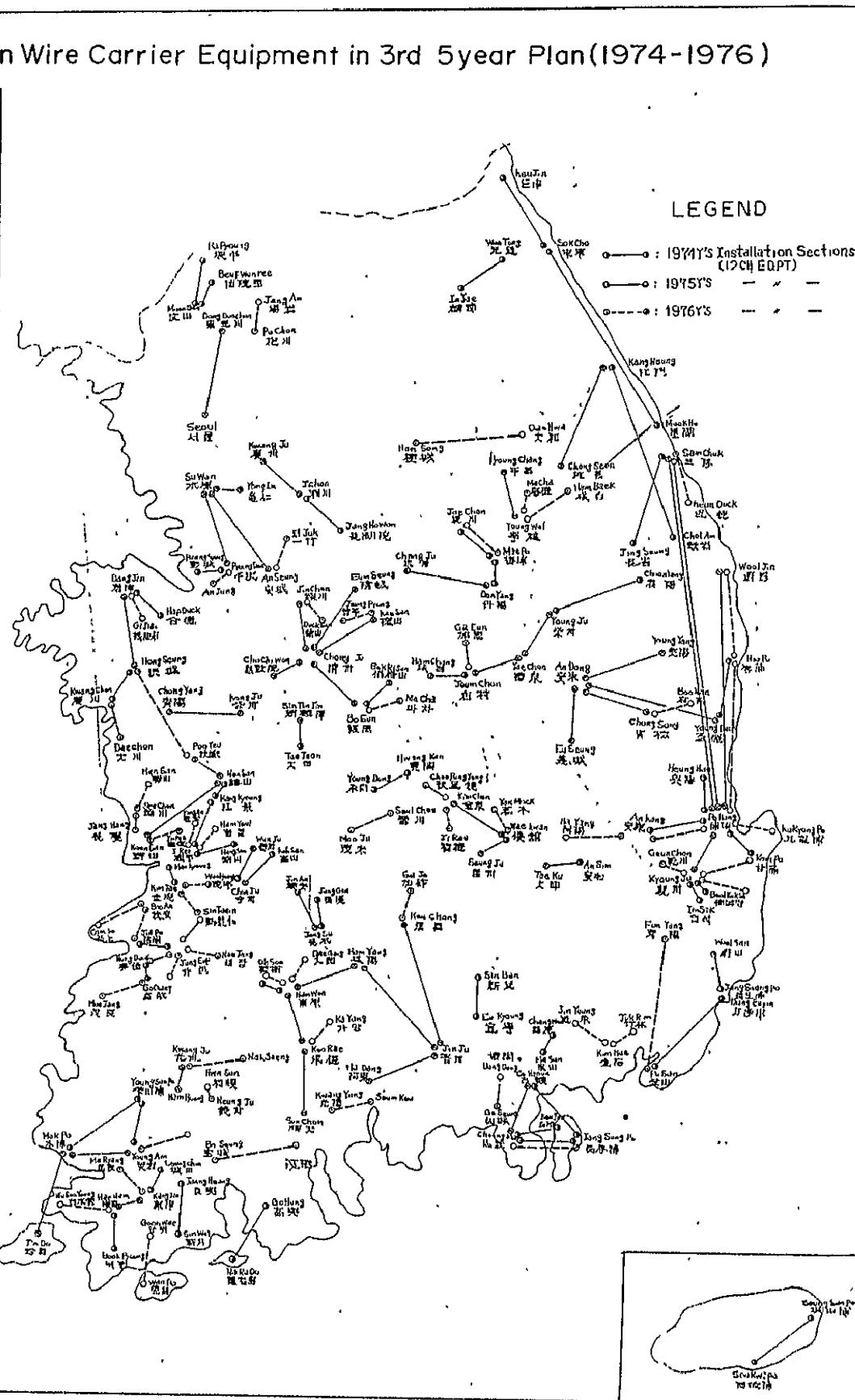
Prior-ity	Inter Sections	CH	Prior-ity	Inter Section	CH
1	Kong Neung - Choi Am	12	23	Gonung - Na Rado	12
2	Hong Seung - Gwang Chail	12	24	Young Am - Young Sampo	12
3	Mok Po - Young Sampo	12	25	Jang Ilwung - Sin Wol	12
4	Na San - Chung Won	12	26	Hae Nam - Book Pyoung	12
5	Moon San - Hump Wonree	12	27	Say Kwipo - Seung Sampo	12
6	Moo Sun - Po Pyoungh	12	28	Young Ju - Book Kuk ed	12
7	Ichen - Jang Ilwon	12	29	Young Ju - Imsik	12
8	Young Jack - Jeong Seung	12	30	Young Duck - Ilwo Po	12
9	Sam Chuk - Jang Seung	12	31	Young Ju - Choon Yang	12
10	In Jae - Won Tong	12	32	Jeum Chorit - Han Chang	12
11	Eo Eun - Sokri San	12	33	Po Hang - Kim Po	12
12	Dan Yang - Mae Po	12	34	Po Hang - An Kang	12
13	Young Dong - Heung Kan	12	35	Po Hang - Heung Ilse	12
14	Jae Chon - Mae Po	12	36	Go Hyout - Jang Sung Pa	12
15	Non San - Kung Kyoun	12	37	Woo San - Jang Seung Po	12
16	Dang Jin - Hap Duck	12	38	Po San - Bong Eulje	12
17	Kim Jae - Min Kyoun	12	39	Choong Moo - Jang Sung po	12
18	Iree - Kang Kyoun	12	40	Choong Moo - Kee Jae	12
19	Iree - Nang San	12	41	Ex Ryoun - Sin Ban	12
20	Jeung Eup - Jul Po	12	42	Sok Cho - Kee Jin	12
21	Jang Soo - Jang Gea	12	43	Sok Cho - Mook Ho	12
22	Kang Jin - Seung chon	12	TOTAL	43 Sections	516

1975 y's Installation Sections

Prior-ity	Inter Sections	CH	Prior-ity	Inter Sections	CH
1	Suwon - Yon In	12	24	Sam Chuk - Po Hang	12
2	Silwan - Pyoung Tark	12	25	Jin Ah - Jang Soo	12
3	Silwon - An Seung	12	26	Nam Won - Koo Rae	12
4	Kung Neung - Chong Soun	12	27	Nam Won - Ham Yang	12
5	Soon Cheun - Koo Rae	12	28	Hue Nam - Kang Jin	12
6	Mok Po - Young Am	12	29	Non San - Keon San	12
7	Mok Po - Jin Do	12	30	Non San - Po You	12
8	Hong Seung - Jang Jin	12	31	Keng Ju - Chong Yang	12
9	Chong Ju - Cho Chilwon	12	32	Woo Kwan - Seung Ju	12
10	Chong Ju - Jin Chon	12	33	Chung Moo - Ko Hyon	12
11	Chong Ju - Eum Seung	12	34	Kyoungh Ju - Po Hang	12
12	Chong Ju - Bo Eun	12	35	Kim Chan - Woo Kwan	12
13	Chong Ju - Kee San	12	36	Young Ju - Yeo Chan	12
14	Chong Ju - Dan Yang	12	37	Teum Chon - Yeo Chan	12
15	Chon Ju - Ha Dong	12	38	Po Hang - Sam Chuk	12
16	Chon Ju - Kee Chang	12	39	Po Hang - Wo Jin	12
17	Jin Ju - Ilan Yang	12	40	Seoul - Don't Doordor	12
18	An Dong - Eu Sung	12	41	Tae Jeon - Sin Ban Jin	12
19	An Dong - Chong Sung	12	42	Chon Ju - Wun Ju	12
20	An Dong - Young Yang	12	43	Chon Ju - Koh San	12
21	An Dong - Young Duck	12	44	Kwang Ju - Nam Pyoung	12
22	Ichen - Kwang Ju	12	45	Tee Ku - An Sim	12
23	Young We - Pyoungchon	12	TOTAL	45 Sections	540

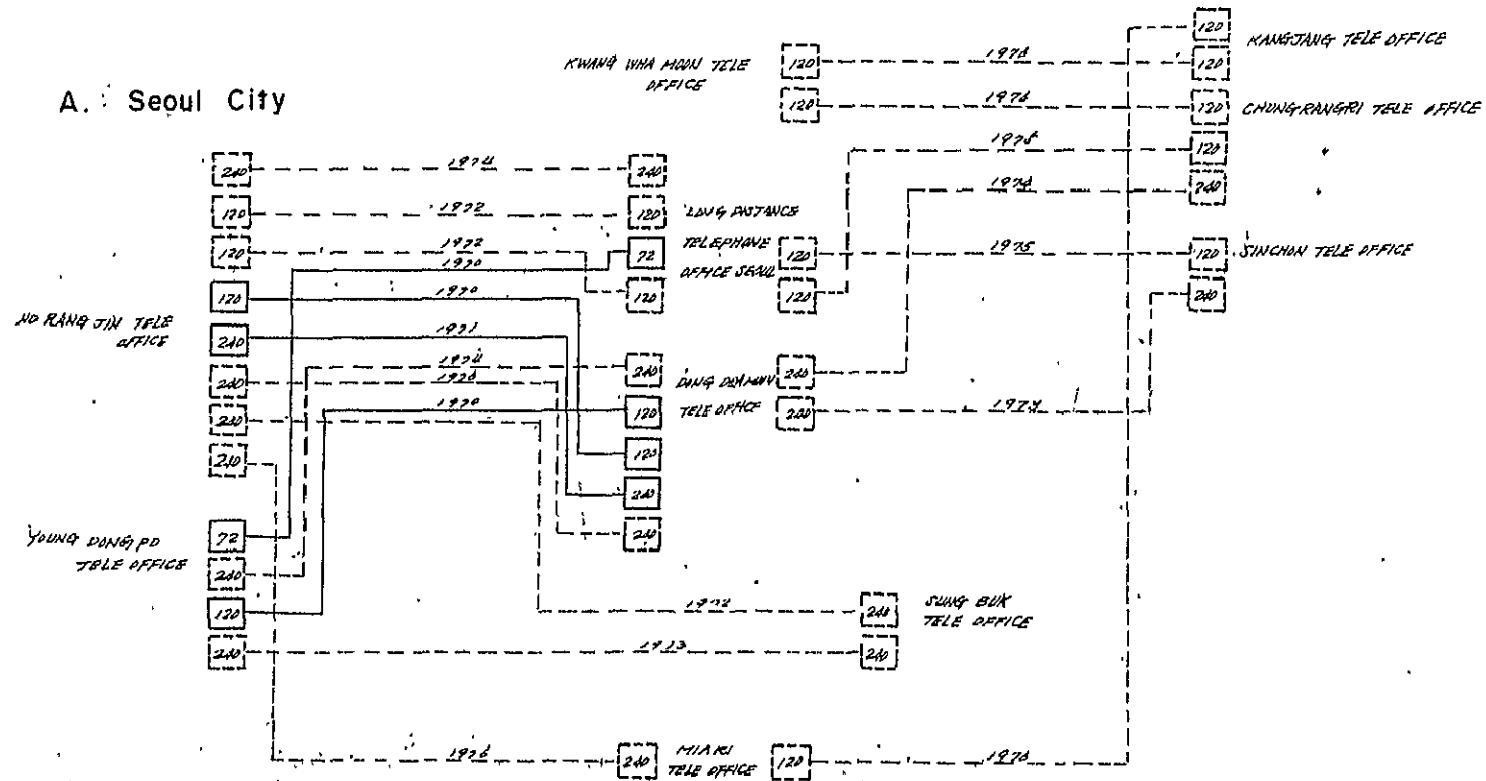
1976 y's Installation Sections

Prior-ity	Inter-Sections	CH	Prior-ity	Inter-Sections	CH
1	Kwang Ju - Nak Saeng	12	32	Teung Eup - Young Wol	12
2	An Seung - Il Juk	12	33	Teung Eup - Hong Duck	12
3	Young Heek - An Jung	12	34	Kung Jin - Ma Ryang	12
4	Ri Chon - Jang Am	12	35	Bo Sung - Baul Kyo	12
5	Sam Chuk - Kwon Duck	12	36	Young Am - Seu Ho	12
6	Young Wol - Ma Cha	12	37	Won Do - Goon Wae	12
7	Young Wol - Han Back	12	38	Hue Nam - Wu Sae Young	12
8	Hue Song - Dae Hui	12	39	Hue Soon - Noungh Ju	12
9	Goo San - Joeng Pyoun	12	40	Kwang Yang - Seum Keu	12
10	Bo Iun - Ma Cha	12	41	Kyoungh Ju - Geun Chan	12
11	Jin Chon - Duck San	12	42	Kyoungh Ju - Gam po	12
12	Jin Chon - Mae Po	12	43	Kyoungh Ju - Ah Hwa	12
13	Dring Jia - Gi Jisi	12	44	Kim Chan - Cheo Purdeon	12
14	Dring Jia - Kwang Chan	12	45	Kim Chan - Ji Rae	12
15	Pee Yeu - Hong Sung	12	46	Young Chan - Ha Yang	12
16	Seu Chan - Teng Hang	12	47	Wab Jin - Hoo Po	12
17	Seu Chan - Han San	12	48	Woo Kwan - Yeo Mock	12
18	Ge Chang - Moo Jang	12	49	Teum Chan - Ga Run	12
19	Ge Chang - Heung Duck	12	50	Chong Sung - Boo Nam	12
20	Kwon San - Impeo	12	51	Po Hang - Ku Ryong Po	12
21	Kim Tae - Sin Taean	12	52	Po Hang - Il Ju Po	12
22	Kim Jae - Won Pyoung	12	53	Po Hang - An Kang	12
23	Naem Won - Dan Gang	12	54	Woo Chang - Ga Jo	12
24	Nam Won - Oh See	12	55	Ge Yang - Koo Rae	12
25	Moo Ju - Seul Chon	12	56	Ge Sung - Dang Dong	12
26	Pee An - Gam So	12	57	Kim Hae - Jin Young	12
27	Pee An - Gul Po	12	58	Kim Hae - Juk Rim	12
28	Iree - Ham Youl	12	59	Pusan - Eun Yang	12
29	Jeung Eup - Sin Taean	12	60	Choong Moo - Jang Sung Ju	12
30	Iree - Yong An	12	TOTAL	60 Sections	717

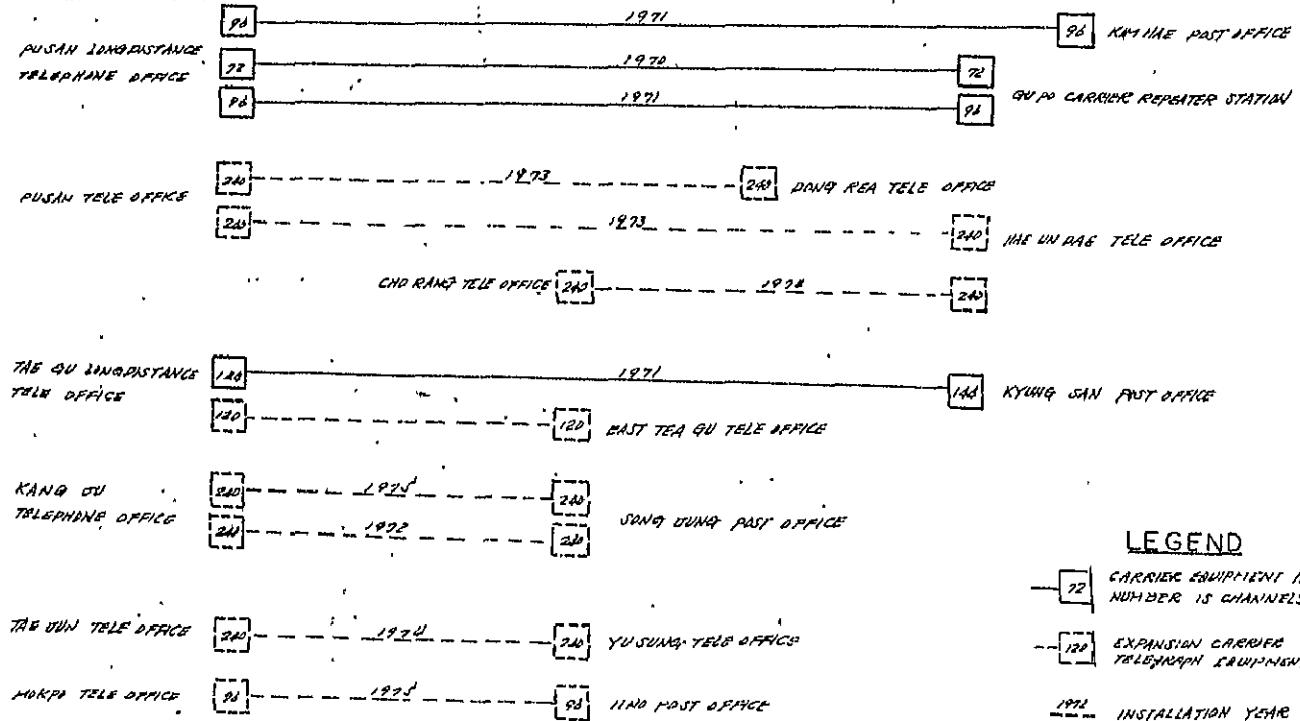


The Expansion Layout of P.C.M Carrier Equipment in 3rd 5year Plan

A. Seoul City



B. Pusan and Others Area



LEGEND

- Box with number: CARRIER EQUIPMENT IN HAND
NUMBER IS CHANNELS
- Box with dash: EXPANSION CARRIER EQUIPMENT
TELEGRAPH EQUIPMENT
- Box with question mark: INSTALLATION YEAR

The Expansion Layout of Carrier Telegraph Equipment for Telex Net-Work in 3rd 5year Plan

